

WHAT IS CLAIMED IS:

1. A capsular medical system comprising:

a radio receiving device in an extracorporeal device,
to which a plurality of antennas are connected;

a radio transmitting device in a capsular in-body unit,
which transmits medical data;

a switching device which switches antennas provided for
the extracorporeal device;

a monitor device which monitors a receiving state of
the selected antenna; and

a storing device which stores the receiving state every
antenna,

wherein the monitor device comprises:

a data amount measuring device which measures the data
amount of medical data transmitted from the in-body unit;

a timer device which counts the time required for
transferring the medical data in units from the in-body
unit; and

a calculating device which calculates a data transfer
speed based on the data amount and the time required for
transferring the data.

2. The capsular medical system according to Claim 1,
wherein the data amount measuring device measures the data

amount between two symbols which are added to the head and the end of the medical data.

3. The capsular medical system, wherein the timer device counts an interval from the time for detecting the symbol added to the head of the medical data to the time for detecting the symbol added to the end of the medical data.

4. A capsular medical system comprising:

- a radio receiving device in an extracorporeal device, to which a plurality of antennas are connected;
- a radio transmitting device in a capsular in-body unit, which transmits medical data;
- a switching device which switches the antennas provided in the extracorporeal device;
- a monitor device which monitors a receiving state of the selected antenna; and
- a storing device which stores the receiving state every antenna,

wherein the monitor device which monitors the receiving state comprises:

- a device which previously stores the data amount of medical data in units from the in-body unit;
- a timer device which counts a transfer requiring time of the medical data in units from the in-body unit; and

a calculating device which calculates a data transfer speed based on the time required for transferring the data amount.

5. A capsular medical system comprising:

a radio receiving device in an extracorporeal device, to which a plurality of antennas are connected;

a radio transmitting device in a capsular in-body unit, which transmits medical data;

a switching device which switches the antennas provided in the extracorporeal device;

a monitor device which monitors a receiving state of the selected antenna; and

a storing device which stores the receiving state every antenna,

wherein the monitor device comprises:

a storing device which stores the lowest allowable value in the receiving state;

a comparing device which compares the receiving state with the lowest allowable value; and

a switching instructing device which issues an instruction for switching the antenna.

6. A capsular medical system comprising:

a radio receiving device in an extracorporeal device,

to which a plurality of antennas are connected;

a radio transmitting device in a capsular in-body unit, which transmits medical data;

a switching device which switches the antennas provided in the extracorporeal device;

a monitor device which monitors a receiving state of the selected antenna; and

a storing device which stores the receiving state every antenna,

wherein the monitor device comprises:

a first timer device which counts a time required for transferring the medical data in units, which is transmitted from the in-body unit;

a second timer device which counts a time required for transferring the medical data in units, from the in-body unit;

a calculating device which calculates a data transfer speed based on stored data amount and the time required for transferring the data; and

a position calculating device which calculates the position of the in-body unit based on the data transfer speed of each of the plurality of antennas.

7. A capsular medical system comprising:

a capsular in-body unit having a radio communication

device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body; and

at least two antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device,

the capsular medical system further comprising:
a switching device which switches the antennas; and
a detecting device which detects a communication state,
wherein the capsular medical system operates the switching device at a switching timing in a communication direction.

8. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;
a detecting device which detects a communication state;
and

an antenna selecting device which detects a receiving strength, in the in-body unit, of signals transmitted from at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein the antenna selecting device performs the operation at the time interval set by a timer.

9. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;
a detecting device which detects a communication state;
and

an antenna selecting device which detects a receiving strength, in the in-body unit, of signals transmitted from

at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein the detecting device performs the operation at the time interval set by a timer and, when a communication state is deteriorated, the antenna is switched.

10. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;

and

an antenna selecting device which detects a receiving strength, in the in-body unit, of signals transmitted from at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein a number n of antennas whose receiving and transmitting states are checked is smaller than a number N

of attached antennas when switching the antennas.

11. The capsular medical system according to Claim 10, wherein the antenna whose receiving and transmitting state is checked is determined based on the antenna which currently receives data.

12. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;
and

an antenna selecting device which detects a receiving strength, in the in-body unit, of signals transmitted from at least two antennas and selects the antenna in a preferable receiving and transmitting state,

the capsular medical system further comprising a

storing device for storing the receiving and transmitting state,

wherein, when the receiving strength data is not obtained upon operating the antenna selecting device, the antenna which can communicate data is checked is selected to ensure the communication.

13. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;

and

an antenna selecting device which detects a receiving strength of a signal transmitted from the in-body unit by at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein the antenna selecting device operates at the

time interval set by a timer.

14. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;
and

an antenna selecting device which detects a receiving strength of a signal transmitted from the in-body unit by at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein the detecting device performs the operation at the time interval set by a timer and, when a communication state is deteriorated, the antenna is switched.

15. A capsular medical system comprising:

a capsular in-body unit having a radio communication

device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;

and

an antenna selecting device which detects a receiving strength of a signal transmitted from the in-body unit by at least two antennas and selects the antenna in a preferable receiving and transmitting state,

wherein a number n of antennas whose receiving and transmitting states are checked is smaller than a number N of attached antennas when switching the antennas.

16. A capsular medical system according to Claim 15, wherein the antenna whose receiving and transmitting state is checked is determined based on the antenna which currently receives data.

17. A capsular medical system comprising:

a capsular in-body unit having a radio communication device which is inserted or swallowed to be introduced to the body cavity;

an extracorporeal device having a communication device for communication with the in-body unit, which is arranged outside the human body;

a plurality of antennas which are arranged near the body surface to communicate data to the in-body unit connected to the extracorporeal device;

a switching device which switches the antennas;

a detecting device which detects a communication state;

and

an antenna selecting device which detects a receiving strength of a signal transmitted from the in-body unit by at least two antennas and selects the antenna in a preferable receiving and transmitting state,

the capsular medical system further comprises a storing device for storing the receiving and transmitting state,

wherein, when data on the receiving strength is not obtained upon operating the antenna selecting device, the antenna which can communicate data is checked is selected to ensure the communication.